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A National System of Education

Presidential Address

Before the Association of American Agricultural Colleges and Experiment Stations

Berkeley, California

By Enoch A. Bryan

Berkeley, Cal
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TWENTY-NINTH SESSION

OF THE

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A NATIONAL SYSTEM OF EDUCATION.

PRESIDENTIAL ADDRESS BEFORE THE ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS, AT BERKELEY, CALIFORNIA, BY ENOCH A. BRYAN.

The counterpart of the theory of "local self-government" to which we, as a people, were from the beginning devoted, has been our scheme of local education. Among our English ancestors, the most primitive and imperative obligation resting on the free citizen was the **trinoda necessitas**—the triple obligation—the repair of bridges and roads; the repair of defenses, whether wall, hedge, or ditch; and military service. Our colonial forbears added to the primitive and ancestral duty of working the roads and military duty, the obligation of providing for the modern defenses—the education of our Youth.

The local school and the local church have been, from the early settlement, characteristic and universal. The academy and the college on private or church foundation, strengthened this tendency toward the local and self-sufficing institution. For two centuries the school and college remained a non-governmental function. As a state function, the history of education is confined to little more than a century and its principal development belongs to the last half century.

Foreigners accustomed to recognize in the educational administrative department of Modern European Constitutional Governments, one of the most important portfolios of the central government, wonder that, in America, passionately devoted as it is to the ideal of universal education, there should be no cabinet position to represent and promote this most essential element of the national life.

To the American, the explanation is very simple. Under our dual system of government, in so far as education has been a state function at all, it has been relegated to the local community or state government. There was nothing, therefore, for a Secretary of Education to do.

At the very beginning of the Constitutional Period, the United States became possessed of a patrimony of public lands. This possession was destined to play a most important part in our national development, and in nothing a greater part than

in our Education. The declaration of the Ordinance of 1787 that "schools and the means of Education shall forever be encouraged," has had more than the force of law—it has been truly constitutional. By universal consent, the Public Land was, in some way, to further the nation's greatest aspiration, namely, the education of the people.

At the outset, direct gifts for educational purposes were made to local organizations or communities, the government merely assuming the role of benefactor and undertaking no sort of control or direction of the methods by which the beneficiary should receive the benefits. This was in full recognition of the accepted doctrine of the local control of the school.

Next, gifts of land were made direct to townships or states, as in the case of the sixteenth section for common schools and an entire township to each state for a university. The role of benefactor was still maintained and much of the potential force of the gift as well as of its money value was thereby lost. It led, however, to the activity of state and local government in the management of the patrimony, and to the organization of school systems and institutions for the carrying out the purposes of the gift, and this, in turn, led, in the next half century, to the permanent establishment of the governmental function in education and of systems of taxation and management on the part of the state and local units. There was nothing "national" about our system of education, except what was due to the common religious heritage and the common aspirations of the people, due in turn to the common racial origin of the settlers.

Our secondary and higher education was from the beginning essentially imitative in substance, ideals, methods and instruments. The American Cambridge was, in miniature, as far as conditions would permit, the English Cambridge. The creation of a special class—an educated class capable of ministering to the spiritual and political welfare of the people, was the aim. The American college for more than two centuries—yes, for two and a half centuries—was essentially monastic. A "monastic" was a "solitary," and to produce a "monastic," or a "clerk," a "scholar," was the ideal of the American college, just as it had been the aim of its predecessor, the European college, which from the beginning was essentially monastic. The call of the college to the chosen youth of the land was, "Come ye forth from among them. Purify your garments; cleanse and sanctify yourself unto your high and holy calling." The scholar shall wear different garments, speak a different speech, preserve a different mien, maintain a different countenance from the rest of the community. His hands

were soft, his body spare and weak, and his eyes hollow. He lived in a past world, a dead world. He walked in the higher and holier realms of Logic and Rhetoric, of Philosophy and Theology. The Bachelors constituted to all intents and purposes, an order of which masters and doctors were merely higher degrees. Academies were the counterpart of the colleges—the doorway through which the devotees might enter. The curriculum came to assume an almost ceremonial and ritualistic function. When in a later day, the deficiencies of the system for ministering to the needs of a real world, a living world, a world that must be clothed and fed withal, became apparent, the doctrine of "disciplinary" values, of "cultural" values—casuistry, pure and simple—quieted for a generation or two the hungering after real food for the real life which our people were to live. "Authority," by which was meant the dictum of the fathers, the supremacy of the verbal method and monastic ideals of scholarship long ruled and reigned over us. It was our inheritance from centuries of the Verbalistic System. Its devotees formed a caste, honored by all, worshipped by some. It continued to reign over us without dispute until the middle of the last century. Even yet, the monuments of this kingdom are all about us.

It was inevitable that if such a country as America should rise, then such a system as the Verbalistic would fall. Under the spell of such an imitative system it is no matter of surprise that for the first half century of independent national existence, our government should be dominated by it, and that the land grants for educational purposes which reflected the aspiration of our people for universal education, should be handed over unconditionally by the national government to local institutions and governments. Nor is it a matter of surprise that local communities, spurred by these gifts to activity, should, in the establishment of schools and colleges, have continued the old imitative system. Aristotle and formal logic, linguistics and forensic disputations were the food upon which the earlier state universities fed their disciples, just as they had constituted the food of the mediaeval colleges. "Words, Words, Words" was the only answer of the college, whether state, church or private, to the cry for intellectual food. "College bred" men and the "overcrowded professions" and "culture" and "discipline" were the response of higher education to the cry of a new nation, throbbing with new life, new powers and new hopes and the intimations of the New Science and the New Industry and the New Democracy.

The Slavery question postponed the day of a better and truer answer. The new thought that an industrial democracy must have an education adapted to its real needs almost burst forth

at the end of the first quarter of the last century, but the slavery problem on the one hand and the wonderful literary outburst on the other diverted the current into other channels.

The struggle of the New Democracy was not destined to find expression in universal suffrage and representative government alone, nor in equality of all men in the eyes of the law, nor in the ejection of human slavery from the body politic, but also, more truly still, in a democracy of knowledge, in a democracy of efficiency, in an educational democracy in which the indivdual should achieve his education by means of the very instruments with which he was to do his life work, and the education thus established should be genuine education; education by means of Agriculture, not for the sake of the agricultural products—by means of the Mechanic Arts, not for the products of industry—by means of Commerce, not for abundance of goods, but for the sake of Man himself.

The culmination of the aspiration for a new education adapted to the needs of the New Democracy was in the establishment of the system of the Land Grant Colleges in the United States. No more mistaken or sinful interpretation of the movement could have been suggested than that it was the outgrowth of a low commercialism.

The conception was original and it was national, in the ideals to be attained, in the instruments to be used, in the pedagogical methods to be employed and in the organizations to be established. We were not conscious of this fact then, we are but dimly conscious of it now, and we have been but slowly growing conscious of it during the past half century. None the less, the education with the new instruments, by the new methods, to the new ends, truly national in scope, is in distinct harmony with the ideals of democracy—essential to its existence—and it is truly national. It is not only the realization of the "Novum Organum," the new instrument, but, also, of the New Purpose, the New End.

The great revolution lay in the fact that the conscious nation through its supreme legislative now determined to effect a New Purpose—a New End. Hitherto, the educational aims of our people, beyond the most elementary steps, were to secure through a small, select and isolated class, the abstract end of training the people in righteousness, creating laws and establishing justice. The "learned" class became sponsor through their abstractions of theology, law, and learning for the welfare of their fellows. Their preparation for this function was primarily by a literary and verbalistic regime. The supreme emphasis upon "Mind" as a distinct entity from the body, and its development by food proper to it, uncontaminated by any materialistic connection, was responsible in part for the rejec-

tion of Science as an instrument of education and the utter avoidance of any utilitarian infection.

From this epoch forward, however, one, at least, of the purposes of education should be to minister to our common human welfare. Moreover, the end should be the education of the industrial classes, in contrast with the exclusive education of the professional classes. The "new instrument" and the new method by means of the common things of life should train the man for the life he should have to live. A proper knowledge and use of our material environment and an understanding of the relation of these to the ordinary social welfare and to the physical and social as well as the intellectual and spiritual well being shall be the goal.

The line between the old and the new is clearly drawn. On the one side lies the "learned professions," constituting a small and select class, separating itself in knowledge, interest, occupations and attainments from the great mass of their countrymen, living off the stipend cheerfully paid for their support by the producing classes. Their education has been verbal, their tastes literary, their reasoning speculative, their faces directed to the past.

On the other sides lies the great mass of the community who deal with material things and material concerns primarily—the great producing and consuming classes. Of these, there are the two grand divisions—those engaged in the great extractive industries, Agriculture, Mining, etc., and those belonging to the great constructive industries, Architecture, Manufacturing and all others who manipulate materials. Much that is fundamental, both in the sciences and arts, is common to both the extractive and the constructive industries. Between them lies the great group devoted to Commerce, Transportation and Trade. These, all together, form the Industrial Classes. The work and the workers in all these are inextricably interrelated.

Over against these Industrial Classes are the old time Professional Classes. Education was the basis of the honor, the prestige, the usefulness of the latter; what could education do for the former?

What stroke of genius, what guidance of Divine Providence, may have led, in the initial legislation, to the use of these two great comprehensive and generic terms, "Agriculture" and "Mechanic Arts," and to the equally happy phrase used to define and describe the purposes of the system about to be established—"the Industrial Classes"—I do not know, but no more happy or illuminating phrases could have been found. The entire field of production, the whole realm of human industry is involved in the phrases used.

And the methods and instruments which were to serve the new education were in like contrast to the methods and instruments which had so long served the old. The Authority of the Book was to give way to the Authority of Nature; the literary to the scientific method; deductive to inductive philosophy; philosophic generalizations to scientific fact; the manna of idealism to the BREAD OF LIFE; the learned professions to the learned vocations; magna chartas of "liberties," to charters of opportunities and abilities, guaranteed by a knowledge of Nature and skill in the manipulation of her materials and products. The "Industrial Classes," for whom higher education had not been directly intended, were now to become the chief object of her solicitude. Not a single industrial class, but all the members of all the industrial classes were to be the beneficiaries, and that by instrumentalities wholly in contrast with those of the old system and adapted alike to the entire membership of these classes—to everyone who makes or manipulates or forwards or otherwise produces material wealth. Let us not forget for a moment where the line lies between the old system and the New National System born in 1862, between education primarily for a small and select literary caste and education for the vast producing multitude. It is not between one producing class—the farmer—and all the rest, but between the producing and the non-producing classes of society. Herein, hitherto, has been misconception and blundering, which have materially interfered with our progress.

The methods, curricula and instruments of the new national system of education indicate alike its distinction from the old and its solidarity within itself. Henceforth, Education was to face in a new direction. It was to have a new mission. The new thought developed first in higher education. In the end, it has permeated secondary and elementary education. It has exerted a powerful influence in the modification of the traditional literary system, and the traditional institution, in so much so, that many account themselves apostles of the new system without knowing whence it came or how or why it came to pass.

To carry out this new national ideal of an education "of the people, for the people and by the people" a system of colleges and universities was founded with an institution in each state and territory, deriving, in part, the means of subsistence from national sources and confining its chief purpose to the national ideal.

Here was an Epoch indeed.

Two things astonish us: First, that this, the greatest piece of Educational Legislation of the century, should have been enacted amidst the throes of the Civil War. It was in 1862,

when Bull Run had been fought, when the very existence of the nation and the success of the Great Experiment in Democracy were in doubt, that this great act of Peace legislation, this act establishing a new and revolutionary system of national education in harmony with the genius of our political institutions, was passed by the Congress of the United States.

The other cause of astonishment is that a layman, not an "Educator" should have been responsible for this, the most astonishing legislative phenomenon—so far as education is concerned—in our national history. It was not a graduate of one of our great universities but of the University of Hard Knocks who became the national benefactor in this most important legislation.

With a wisdom and conservatism worthy of the great statesman who conceived the new system, the transition from the old to the new and the final coalescence of the best and most permanent elements of both the old and the new, were provided for. Existing institutions, representative of the old system might, in certain instances and under certain conditions, become the embodiment of the new idea. With equal care to guard against revolutionary destructiveness, the law provided against the exclusion of old and tried elements of the traditional curriculum. That well known provision against the exclusion of "classical" studies does not refer to Latin and Greek, but it uses the word "classical" in that broader sense in which we use it in describing the best in music, art or literature.

It was inevitable that the new system should be put into operation by men whose education, tastes, philosophy, and predilections were with the old system. The sad story of the first twenty-five years of effort, disappointment and loss will, when seen in the proper perspective, be one of the bright chapters in the history of Education in the United States. Slowly, gropingly, patiently, persistently, untiringly, men worked their way through the outer darkness into the light of a new day. The advanced stage of the pedagogy of one of the grand divisions of the new system was of untold value in developing the other grand division. That is to say, the state of the Mathematics, Physics, and Mechanics, fundamental to a broad development of the Mechanic Arts, was such as to afford a good foundation. They were exact and exacting in their requirements, and automatically excluded weaklings and the immature and unprepared and set the mark for a proper collegiate training to those who should find their proper work in the other great field of production—that of Agriculture. The enormous modification necessary to be made in the primary sciences which are fundamental to Agricultural Science, such as Chem-

istry and Biology, delayed the day of a similar pedagogical development in the second grand division.

It was a long, long way to even a fairly successful use of Agriculture as a means of education.

It still remained for the law to specifically set forth, in a formal way, what by implication was in the original act, namely, the essential ministry of the natural and physical sciences, and that great correlating science, indispensible to all industrial education, Economic Science. Indeed, Political Economy was in 1862 and long after, an inductive science scarcely capable of rendering the essential service to industrial education. This apparent, but not real omission from the organic act was specifically set forth in the Second Morrill Act in 1890, and the sphere of industrial life was rounded out by the addition of Domestic Economy.

Permit an aside here, to deprecate the lack of a proper use of that great and inclusive phrase, "the mechanic arts," and the substitution therefor, in common parlance and college curriculums, of the subordinate term, "Engineering." The term "Engineering" by no means fills the concept of the "Mechanic Arts," and a broad field of future college development in this direction lies even yet unexplored. There are the Fine Arts and the Liberal Arts. There are also Agricultural Arts and Household Arts; and there are the Mechanic Arts, which relate to the manipulation of all constructional work of whatever kind, and the manipulation of all materials, whether of clay, or wood, or metal, or what not. Most of us have judged all too narrowly in the use which we have made of the fundamental laws and technique of the mechanic arts as they lend themselves to an educational program.

The practical outcome of the establishment of this system which we imperfectly describe as the system of "Land Grant Colleges and Universities," is historically interesting. We have stumbled forward with a narrowness and selfishness that seems natural to school men. The most astonishing fact is that we have failed to comprehend that we had established a system of National Education—national in its legislative origin, and truly national and original in its conception, both of ends and means. A half century later we are aware that the doctrine has engulfed the secondary and elementary schools and has profoundly affected the strongholds of the older system. There are those, even, who would deny that the land grant colleges are the true exponent of the great forward sweep of modern education.

There are those who do not comprehend the ministry of the college in the education of the industrial classes, and who do not differentiate this ministry from that of the secondary or

the elementary school, and who would make of the college, a school of arts and handicrafts. The persons who so interpret usually have a low conception of the word "industrial," as though it related to something servile, as though it were applicable exclusively to the wage earning class, as though it were linked merely with manual dexterity and a low degree of knowledge. They fail to understand that there is no material or force in nature, there is no field of human production, there is no branch of constructive work, there is no field of commerce, even, which does not rest upon fundamental laws; that these laws may be known and understood and used; and that the reaction of these studies and this training upon the mind of man is as important as the means of education as it is in effecting human welfare.

There are those again who persist in their failure to comprehend the breadth of the movement, who assume that the National system relates to Agriculture alone (and that in its narrowest sense), or, Agriculture—plus Domestic Economy, or these plus Engineering, and who do not see that the new system involved an entire change in front, a revolution in means and methods and ends, the opening up of education to the great majority and a new conception of the relation of higher education to the state. On the side of Agricultural education alone, it involved the development of the substance as well as the method of a new curriculum. The reason why Agricultural education was rejected for a third of a century was because it lacked substance—anything worth considering. The rise of agricultural research and the extension of agricultural knowledge beyond the college to the people was but the rational and necessary sequence of the new national system. The patient development of curricula, methods and facilities and the conversion of abstract sciences pursued as ends in themselves, to concrete sciences used as instruments to the ultimate ends of service to mankind are but chapters in the history of this great educational movement.

Since the movement was truly national in legislative origin, in economic basis, and in educational ideals, there should have been and there ought to be at this late hour, a national Department of Education presided over by a Secretary of Education, who should contribute to the unification and efficiency of the system, and to the development of its ideals for the education of an industrial democracy. There have been official attempts to measure the institutions of the national system by the standards of the traditional college of the literary system and to discredit those that departed from the old regime. There have been other attempts to reduce them from the position of colleges to that of trade and occupational schools. There have

been still other attempts to narrow their sphere to the service of a single industry.

As a defense against misconception, attack and injury, a Department of Education would have been of the highest importance.

There would have been such a Department and such a Secretary had there not been within the Department of the Interior, for half a century, a rare lack of perception of our national aspiration in education. a rare lack of an understanding of the relation of Education to the Industrial Development of a nation, and a rare appreciation of the paramount importance of other things.

How startling that there should have existed, for half a century, a national system of Education, so distinctive in its characteristics, so closely related to the national development, for which this department was responsible, and that it should not have known it. The system was ready made to hand. It was the system of the "land grant" colleges and universities. There was at least one institution of the type in each and every state. There was a distinctive ideal to be developed. The "leading object" (to use the words of the Morrill Act) in each was the same. There was work of national significance to do. New methods were to be discovered; new instruments to be invented; and a unity in the movement was to be devised. Each institution was to be accounted for in the national budget. How rarely strange that for more than half a century the sole function assumed by the responsible governmental department should have been left to clerks and underlings whose sole task was the checking up of accounts of the several states in the matter of Addition—but not always in Subtraction and Division.

It is almost equally amazing that out of the same Department of the Interior there should have emerged, under almost accidental circumstances, a new Department—that of Agriculture—destined to develop with amazing rapidity, assuming not only the legitimate functions of such a national department, but likewise absorbing the purely educational and pedagogical functions of the new educational system. This Department has stood sponsor, not merely for the agricultural side of the system, but likewise, in a measure, for all its other industrial phases, particularly that of Home Economics. This vigorous young giant, the Department of Agriculture, brought to life by reason of the Agricultural College, has easily elbowed out of the way whatever feeble attempts at self assertion may have been made by the departments charged with the educational function of our national government. From time to time, feeling the throb of the great national movement toward a rational

system of education adapted to an industrial commonwealth, the Bureau of Education has made attempts to break into our local systems of secondary and elementary schools—at least, with sound advice. Baffled at every turn because it is an outsider to our purely local agencies, the Department seems to be wholly ignorant of the dictum that educational movements are from above downward, and to be wholly unconscious of the fact that it has ready made to hand, and has had for half a century, a system for which it is responsible, a system through which the end in view could be accomplished, and yet which it has practically neglected. It is a system found in every state, fed from the national treasury; it is a system as broad and far reaching as human industry; it is in need of unification, in need of pedagogical guidance; and yet at times wholly neglected and lacking the sympathy in its aims and methods, of the governmental department, charged with the duty of representing the nation's interest in education.

The purely educational problems of the national system are many and important. The first step should be the establishment of a solidarity of interest between the land grant colleges and universities in the several states and sympathetic relations with the responsible educational department of the government. The institutions should be led to a common understanding of the ministry of the college and university on the one hand as contrasted with that of the elementary and secondary schools on the other. The institutions in the several states should begin and end their undertakings at the same academic stage. They should promote a just balance in the educational development of the several divisions of the industrial classes so that the one should not outrun the other. Agriculture, Mechanic, Commercial, Economic and Household Arts and Sciences should progress with equal pace. This is the theory which has dominated our politico-economic development for a century past. This is the meaning of our protective tariff theory to which we as a nation have been devoted. Through this balance of the industries has come national power and prosperity. Our national educational system should be and is the counterpart in theory of the development and balance of the several industrial pursuits of our people. We need the strength and dignity and sympathetic guidance of a National Department of Education to accomplish these ends. Its primary function might well be the co-ordination of the existing national system of land grant colleges and universities. the statistical and informational function of the Bureau readily sinking into a secondary position in the Department. The Department of Agriculture should then divest itself of its growing pedagogical responsibilities and undertakings which already

hamper its legitimate development in a degree, and which do not properly belong to it. Great as its service has been, the original collegiate functions of the system already feel in the pressure of such a highly specialized department the unbalance, which a strictly educational department would restore.

If presently, such legislation as that proposed by the Page Bill, or the Hughes Bill, be enacted into law, covering a field of education affecting all the people and for which, under no pretense, could the department of agriculture be held responsible, the administration of the law would fall naturally and easily into a Department of Education.

There is no necessary reason why such expansion of the national industrial ideal in education should overthrow or even seriously disturb our state and local system. Yet it would surely and rapidly carry downward into the lower schools, the ideals and methods and the substance which the land grant colleges and universities have so patiently and so successfully developed.

It would be absurd to establish a vast and far-reaching system of education, no matter if it be called vocational, and entrust its development to the combined tender mercies of a Department of Agriculture, a Department of Commerce, a Department of Labor, etc., merely because the said departments touch upon their respective interests in the industrial classes; and the addition of the Postoffice Department to this hydra-headed federal vocational board promises little that is remedial in such a system.

Nor are we looking for a duplicate system of education. We are looking for the rationalizing of the existing system which shall adapt it to the needs of an industrial commonwealth. All that the idea of these vocational proposals involve, we now have in the basic national system of higher education, which, if extended, under a wise Department of Education, to the aid of secondary education and not distorted by the over stimulus of a single industry, will modify our existing school system to meet the new and growing demands.

I have not a word to say, in this connection, concerning Washington's dream of a national university, nor of the modern amendments to his conception, except this, that should it develop out of the system for which the great departments of Agriculture and Education are sponsors, it would add one more means of moulding our hybrid people into a homeogenous nation.

Under recent developments we are liable to forget that the center and soul of this great epoch-making movement is after all a "college"; that it is primarily an EDUCATIONAL movement, and that the trunk out of which such vigorous branches

as Agricultural Experimentation and Extension grew must be maintained in its proper strength and development as the true source of life. The college may well say "I am the vine, ye are the branches."

I am fully conscious of the danger of disturbing the delicate balance of local and state education, and of the preciousness of the individuality of each institution. Your alma mater is your own dear mother whose life and personality is precious in your sight. There must therefore be the greatest care and breadth of view on the part of the national government in the extension of the new system of national education. But is not the same care essential in our finance, our commerce, and in every other phase in which the national government touches our national life? Dominated by a broad and liberal policy, we may well entrust governmental function in Finance to a Department of Finance, Commerce to Commerce, Labor to Labor, Agriculture to Agriculture, and Education to Education. But we can not wisely entrust an educational movement which involves practically all classes of society and every type of industry to a department, charged with other and serious duties. We should entrust it to a Department of Education. We need such a department and we need it now.

The development and unity of our national ideal in our system of land grant colleges and universities have suffered somewhat from a seemingly wise provision of the original organic act. It seemed wise to permit existing institutions to modify their aims so as to make the "leading object" of the institution conform to the new ideal and thus become the land grant colleges of the state, and the beneficiaries of the national legislation. The grant might be made to colleges and universities whose "leading object" was instruction in Agriculture and the Mechanic Arts. The ultimate effect has been the establishment of two types of institutions, with the use of two words. "college" and "university," neither of which is well defined in American usage. Confusion and difficulty and a certain lack of a solidarity much to be desired has been the result of this provision. Both institutions may begin at the same point, employ the same facilities, use the same technique, rely on the same fundamental laws, proceed by the same methods to the same distance and with the same efficiency, and yet the pride of name may enter as a disturbing element in a uniform national system of education. The public, as well as the student and the faculties, is disturbed in mind. The popular imagination attaches to a university a curriculum as wide as the universe, though as a matter of fact, a genuine University might have a very narrow curriculum, and there might exist a very broad curriculum with a slight resemblance to a real university.

The popular notion again is that a limited program of studies of a purely technical character, relating solely and narrowly to Agriculture measures the length and breadth of the Agricultural College system. Such a college, according to the popular notion, is comparable in all respects and parallel to the single department of agriculture in an institution called a university. Thus, not only is the equally broad conception of the Mechanic Arts overlooked, and the broader conception of the education of the industrial classes, but more important still, the basic necessity of the primary sciences, which every technical division feeds upon as the very bread of life, is wholly ignored, and the eyes are shut to the vital fact that the educated man, whatever may be his field of activity in life, must feed also upon correlated subjects of higher education. A division of Agriculture in any college or University would, above all others, if separated and isolated from the institution, die.

It is interesting to note that in the twenty of our state universities, which are the land grant institutions of their respective states, the ideal of our national system has become the dominating ideal of the institution, and the objects of the national system are, as a matter of fact as well as of law, the "leading objects" of these institutions, whether the institution is conscious of it or not. The old ideals, ends and means of college and university life have, in these cases, given way to the new, largely; the old "learned professions" have yielded, in the eyes of the youth of the land, to the new professions and vocations. The new National ideal and system occupies an undisputed pre-eminence in the minds of the people. Fortunately or unfortunately, we have the land grant state college and the land grant state university. Each has exercised a great influence over the other. The state college has again and again recalled the university to its original task of service to the industrial classes; the university, on the other hand, has again and again, lifted the state college out of the slough of low scholarship and inspired it with higher ideals of the real ministry of higher education. The interchange of teachers and curricula has been of the utmost importance to both. From both alike, the great and beneficent Department of Agriculture has drawn its recruits. From 1887 until after 1900, this one association united both the separate and combined institutions in and undisturbed development of the new ideal. The solidarity of interest has too often been confined to a single department—that of Agriculture, but it should be extended through the entire realm of education insofar, at least, as it affects human industry. A danger lies within the universities themselves, of a lack of a true perception of the length and breadth of the national ideal.

A fuller recognition of the entire national movement would lead us to the establishment of experiment stations in the realm of the Mechanic Arts, as we did long ago in Agriculture. In that period the backward stage of Agricultural Science made such a step imperative. Today America is on the verge of its life as an Agricultural people and in the beginning of the stage of manufacture for a world market. In fifty years we will be in the industrial stage in which Germany is now—or was a little while ago. Our future is linked with our progress in the fundamentals of the Mechanic Arts.

We are already conscious of the fact that our progress in agricultural production has outrun our understanding of and control of Economic Law, and we are even now laying the foundation in the Economic investigations and teachings of the college and the Department of Agriculture for the proper development of this phase of the work.

If we comprehend in a measure, the length and breadth of the new national system for which we stand sponsors, if we properly co-ordinate and balance the several agencies at our disposal and if, with unity of purpose, we are able to realize, in national organization, the possibilities of the system, we may be able to give an account of our stewardship of which we need not be ashamed.

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